CONANT BROOK DAM MONSON, MASS.

MASTER PLAN
FOR RECREATION RESOURCES DEVELOPMENT

DESIGN MEMORANDUM

APRIL 1979

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASSACHUSETTS

CONANT BROOK DAM

MONSON, MASSACHUSETTS

MASTER PLAN

FOR RECREATION RESOURCES DEVELOPMENT

Department of the Army
New England Division, Corps of Engineers
Waltham, Massachusetts

April 1979

SUMMARY

This Master Plan for Conant Brook Dam includes a comprehensive analysis of the recreational resources of the project area as well as the surrounding region. Extensive coordination with local interests, along with a careful review of the project's capability to accommodate various types of recreational development and use consistent with the authorized flood control purposes of the dam, has resulted in the ultimate recommendations made herein.

The Conant Brook Reservoir is very small and consequently has a limited potential for recreation. In addition, the town of Monson has limited resources with which to share in the development of new recreational facilities. Therefore, this Master Plan reflects a desire to provide practical, optimum use of the project area while protecting its unspoiled natural environment. Only expansion and improvement of existing recreational opportunities plus a small amount of new development is being recommended.

PREFACE

Conant Brook Dam provides an important recreational resource in relatively rural south-central Massachusetts. These resources offer an attractive recreational experience with a variety of popular year-round activities.

It is the intent of this Master Plan to take a comprehensive look at the Corps' role in providing outdoor recreation opportunities and to preserve the unique character of the project by carefully considering the relationship between the environment and construction of recreation facilities.

This Master Plan has been developed from a study of the recreation requirements of the region consistent with consideration for the environment, fish and wildlife enhancement and conservation of project resources. Planning of the recreational development has been thoroughly coordinated with the town of Monson to insure compatibility with the other resources of this flood control project.

JOHN P. CHANDLER
Colonel, Corps of Engineers
Division Engineer

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I. INTRODUCTION

1. Project Authorization

Conant Brook Dam was authorized by the Flood Control Act of 1960 (House Document 434, 86th Congress, 2nd Session). This act also authorized local flood protection projects at Chicopee Falls and Three Rivers, all within the Chicopee River watershed, the largest tributary in the Connecticut River Basin.

2. Project Purposes

Severe damages incurred by the public and private sectors during the 1955 flood of record led to the construction of a number of flood control works by the Corps of Engineers in the Chicopee and Connecticut River watersheds. The principal projects in the Chicopee River system consist of two reservoirs, Conant Brook Dam and Barre Falls Dam, and five local protection projects located in Chicopee, Chicopee Falls, Three Rivers, Ware and West Warren, Massachusetts. Conant Brook Dam is operated for flood control and provides major flood protection for the town of Monson and the Quaboag River flood plain. In conjunction with Barre Falls Dam, the project provides flood protection along the Chicopee River and reduces flood stages downstream to levels for which the completed local protection works were built. The flood of 1955 caused a total loss in the Chicopee River Basin estimated at over $21 million. In addition to damages prevented by Barre Falls Dam, Conant Brook Dam would prevent an estimated $5 million in damages in a recurrence of the 1955 flood.

3. Purpose of the Master Plan

The Conant Brook Dam Master Plan provides a comprehensive and coordinated guideline for the development, management and use of recreational resources on the lands and waters owned in fee by the United States Government for public recreational purposes. These recreational uses must be compatible with the authorized project purpose and planned so as to achieve maximum public benefits from the resources. The Master Plan is intended to be sufficiently flexible to account for the changing of public attitudes, interests and the changing environment.

4. Application of Public Laws

Public Law 78-534, as amended, authorizes the Secretary of War (now Secretary of Defense) to construct, maintain and operate public park and recreational facilities in reservoir areas and to grant such leases on land or facilities to non-Federal bodies as is reasonable and consistent with the major purposes of the dam and reservoir.

Public Law 85-624 directs Federal agencies to coordinate the use of impounded bodies of water with the U.S. Fish and Wildlife Service and directs State wildlife resource agencies to determine the extent of damage caused to wildlife. It also charges governmental bodies to promote the development and improvement of such resources by preparing wildlife resource plans and reports, to provide assistance in the development, protection, rearing and stocking of all species of wildlife, to assist in controlling losses from disease and to minimize damages from overabundance by providing public hunting and fishing areas, including easements over public lands thereto. It further authorizes the modification of, or addition to, projects not completed by March 10, 1934, the date of the Fish and Wildlife Coordination Act, in order to acquire lands to accommodate the means and measures for the conservation of wildlife resources as integral parts of the project.

Under Public Law 89-72, where a project has been completed as of July 9, 1965 and non-Federal bodies agree to administer project land and water areas for recreation, fish, and wildlife enhancement purposes and to bear the cost of operation, maintenance and replacement of existing facilities serving those purposes, such facilities and appropriate project lands may be leased to non-Federal public bodies. The law specifically states that it is not to be construed as preventing or discouraging post-authorization development by non-Federal public bodies so long as agreement is made with the head of the Federal agency having jurisdiction over the project.

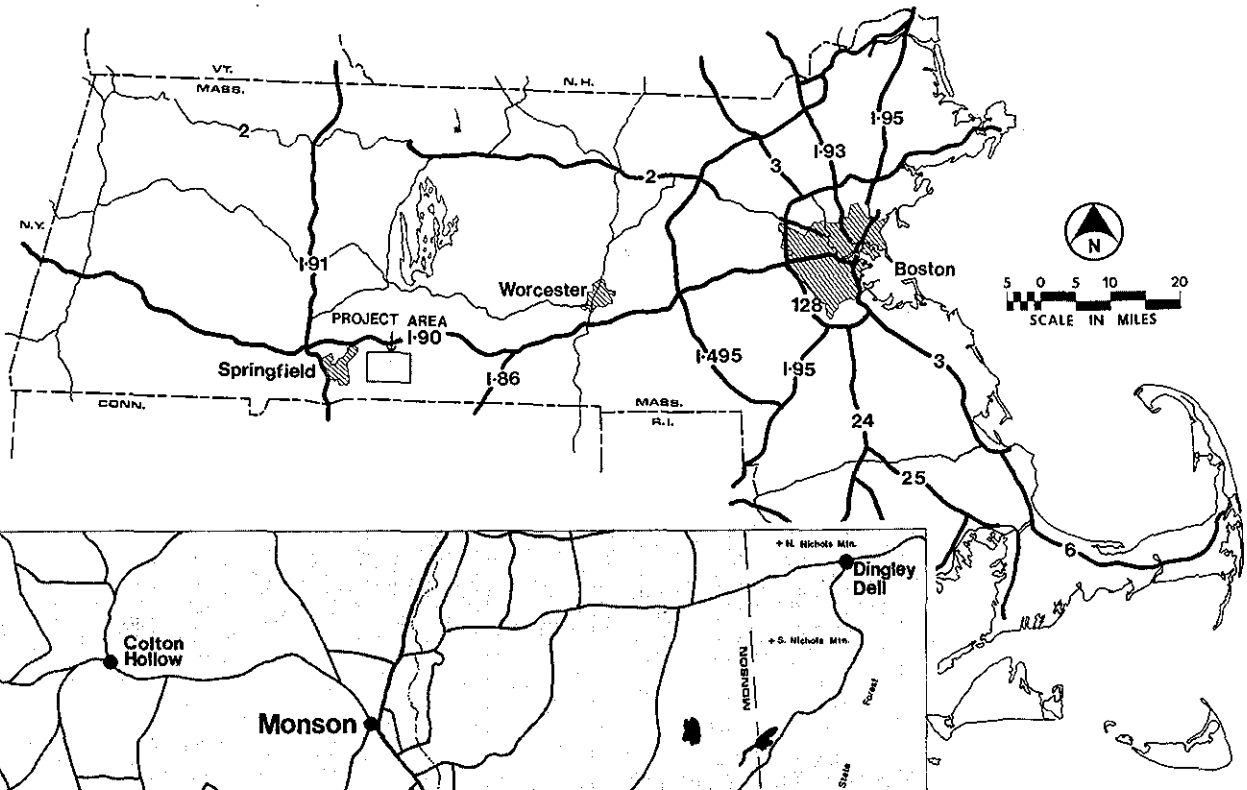
Public Law 89-90 authorizes the establishment of the National Water Resources Commission which has the authority to set forth planning standards and water quality criteria and to maintain a continuing study of regional or river basin plans and programs in relation to national water resource requirements.

5. Scope

The scope of this Master Plan includes a description of project features, an evaluation of natural resources, an analysis of past use, a determination of recreational potential, a plan of public use development and a reservoir management program. Included in the plan is the experience obtained from past use and operation of the project by Federal, State and local interests. The development and subsequent operation required to carry out the program has been considered a cooperative endeavor among these agencies rather than solely a Federal responsibility.

CONANT BROOK DAM
MONSON, MASSACHUSETTS

VICINITY MAP



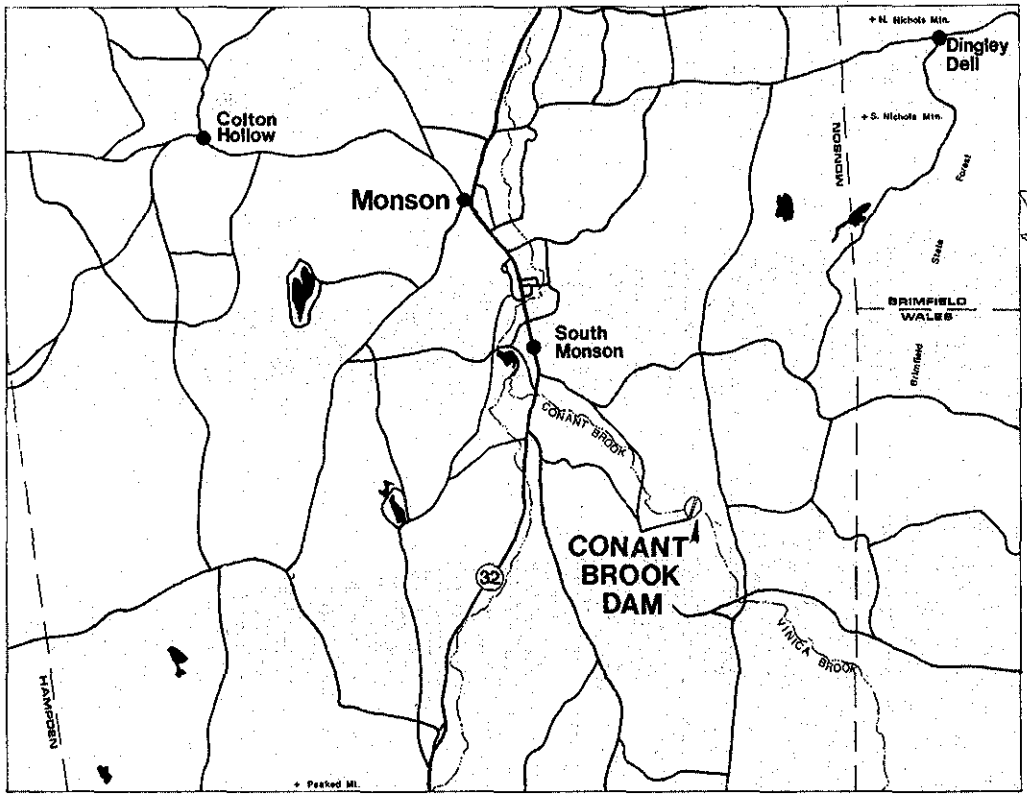


Figure 1

II. PROJECT DESCRIPTION

1. Location

Conant Brook Dam is located in south central Massachusetts on Conant Brook, a small stream flowing into Chicopee Brook which flows into the Quaboag River, a tributary of the Chicopee River. The project lies entirely within the town of Monson, Hampden County, Massachusetts. It is accessible via Mass./Conn. Route 32, which runs north and south intersecting Interstate 90 in Massachusetts and Interstate 86 in Connecticut.

2. Project Data

a. Basin Hydrologic and Climatic Summary

The Chicopee River Basin has a modified continental type of climate. It is generally warm to hot in the summer and moderately cold in the winter. The basin lies in the path of the "prevailing westerlies" and cyclonic disturbances that cross the country from the west or southwest producing frequent weather changes. The watershed is also exposed to occasional coastal storms that travel up the Atlantic Seaboard, some of which are of tropical origin and hurricane intensity. Tropical hurricanes constitute an infrequent but very important potential for flood-producing precipitation, particularly from August through October.

Average monthly temperatures in the Chicopee River Basin vary widely throughout the year with a mean annual temperature of approximately 50°F. Freezing temperatures are generally experienced from the latter part of September to the early part of May.

The mean annual precipitation of the Chicopee River Basin is about 44 inches, ranging from less than 40 inches in the Chicopee area to more than 50 inches at the headwaters of the Ware River. On the average, the precipitation is uniformly distributed throughout the year, but there is considerable variation in the minimum and maximum precipitation occurring in the individual months.

The average annual snowfall in the Chicopee River Basin is about 50 inches, with considerably greater depths at higher elevations. The water equivalent of snow cover generally reaches a maximum sometime in March, generally about 3 to 4 inches. During the period of record, snowmelt has been insufficient alone to produce a major flood. Nevertheless, a serious flood due to heavy rainfall combined with snowmelt runoff is a possibility almost every spring.

b. Reservoir Shoreline, Length and General Character

Conant Brook Dam, at the spillway crest elevation of 757 feet mean sea level (msl), has a gross storage capacity of 3,740 acre-feet, equivalent to 9.0 inches of runoff from the tributary drainage area of 7.8 square

miles. At this elevation, 158 acres of reservoir lands along Conant and Vinica Brooks would be inundated. Also, the reservoir would extend up Vinica Brook about 0.8 miles and up to the dike at Munn Road, a distance of approximately 1.2 miles.

c. Project Structures

Conant Brook Dam consists of a 1,050-foot long rolled earthfilled dam with rock slope protection and has a maximum height of 85 feet above the river bed. The crest of the dam is at elevation 771 feet msl. The dam is 20 feet wide at the crest and accommodates an access road to the spillway.

Approximately 900 feet of earthfilled dike was required to relocate Munn Road in the western part of the project. The top of the dike is at elevation 771 feet msl. It is 20 feet wide at the top with a maximum height of approximately 20 feet.

The spillway, located at the west end of the dam, is a chute with a 100-foot wide ogee concrete weir. The weir elevation is 757 feet msl, 14 feet below the crest of the dam.

The dam outlet is located in the base of the structure and consists of an ungated concrete conduit 3 feet in diameter and 405 feet in length. The inlet structure at invert elevation 693 feet msl is also ungated. At full pool, the capacity of the control works is 225 cubic feet per second (cfs). Flow is directed to the inlet structure by a 10 foot wide inlet channel which has an invert elevation of 693 feet msl. A trash rack and log boom protect the inlet structure from being clogged by debris.

PERTINENT DATA

RIVER BASIN:	Connecticut
PROJECT NAME:	Conant Brook Dam
RIVER:	Chicopee River (Conant Brook)
LOCATION:	Monson, Massachusetts
DRAINAGE AREA SQ. MILES:	7.8
RESERVOIR	
Permanent Pool	No Permanent Pool
FLOOD CONTROL STORAGE	
Capacity - Acre Feet	3,740
- Inches of Runoff	9.0
Area at Crest - Acres	158

PERTINENT DATA (continued)

DAM		
Type	Rolled filled earth and rock	
Length - feet	1,050	
Top Elevation - feet msl	771	
Height above river bed	85	
DIKES - Number, Total length - feet	1	900
SPILLWAY	Chute Spillway	
Type	Ogee Weir	
Length - feet	100	
Elevation feet - msl	757	
Distance below to top of dam - feet	14	
CONTROL WORKS		
Type	Precast R. C. Pipe	
Size - feet	3' Diameter	
Length - feet	405	
Invert elevation feet - msl	693	
Capacity - full pool - c.f.s.	225	
Gates	None	
TOTAL QUANTITIES		
Embankment Volume - c.y.	338,000	
Concrete - c.y.	825	
TOTAL COST	$2,947,000	
OPERATION DATE	June 1967	
PROJECT AREA - Fee (Acres)	469	
- Easement (Acres)	2	
NO. OF PERMANENT EMPLOYEES	O & M by Project Manager from Westville Lake	

3. Reservoir Operation

Conant Brook Dam is self-operating. With an ungated outlet, the reservoir acts as an automatic detention basin storing all flows exceeding the conduit capacity. The selected conduit permits passage of normal flows of the river without utilizing any appreciable storage in the reservoir.

4. Visitation

Public visitation to Conant Brook Dam has averaged nearly 40,000 people per year since 1971. The upward trend in visitation is expected

to reach 50,000 by 1985. The project has an excellent capability of meeting the ever-increasing public demand for outdoor recreation. Visitors to Conant Brook Dam presently enjoy such leisure-time activities as fishing, hunting, hiking, snowmobiling and sightseeing; trends in outdoor recreation indicate that popularity in cross-country skiing and picnicking will continue to increase.

III. OPERATING PROJECTS - STATUS

1. Project Development

Construction of Conant Brook Dam and appurtenant facilities was initiated in 1964 and completed in September 1966 at a cost of $2. million. There have been eight significant storage operations to date, with the largest being experienced in February 1970 when 18 feet of water was stored behind the dam.

2. Expenditures for Public Use Development

There have been no Federal expenditures for public use or environmental resource development at Conant Brook Dam.

IV. RECREATIONAL AND ENVIRONMENTAL RESOURCES

1. Geological Features

In the reservoir area, Conant Brook flows through a narrow valley whose slopes rise abruptly from a small flood plain. The south abutment is formed by a large hill. Bedrock is exposed high on the east flank of the hill but in the abutment area is overlain by a thick deposit of till. The till is generally sandy, consisting principally of silty, gravelly sand and silty sand with cobbles and boulders and includes layers of silt and clay. The feature forming the north abutment is controlled by bedrock which is overlain by a mantle of till or till-like materials. The rock is exposed locally above elevation 750 feet msl (and along the riverbank some 350 feet downstream). The bedrock is a locally granitized, biotite schist, the structure of which trends normal to the river and has a near vertical dip. In general, the top 10 to 15 feet of the rock is highly jointed and fractured and variably weathered. In the floor of the valley the bedrock is overlain by up to 40 feet of overburden consisting of till, overlain by outwash deposits and capped by recent alluvium. Layers of silt and silty fine sand are common to all of these deposits, however, the bulk of the materials in the stream section consists of variably silty sands and gravels, with zones of relatively clean and somewhat pervious materials.

2. Archaeological and Historical Resources

Prehistoric occupation in the Quaboag River drainage dates back to 5000 B.C. The prehistoric inhabitants utilized a variety of fernestrival and aquatic resources, locating their camps and villages near

watercourses and ponds in the region. Prehistoric site locations within the government property at Conant Brook Dam would have been located on well drained and level ground near brooks and ponds and sited to exploit wildfowl and upland plant and mammal species.

Settlements in the government property at Conant Brook Dam began in the second decade of the 18th century and consisted primarily of farms and small scale industries. Many of the farms were abandoned a century later and considerable property passed to town ownership as watersheds for a town water supply system. Information gathered for the cultural resource reconnaissance identified ten historic features which formerly existed in the area, two schools which stood a short distance beyond the property, the Moulton Hill Cemetery which marks its southeastern corner and two dry laid stone wells built in the 1890's and 1920's, respectively. All but three of these, the two wells and a barn foundation, also built of dry laid stone, were obliterated by extensive earth moving during dam construction in 1964-66. Although these three features are below the spillway crest elevation, the nature of their materials should not be affected by normal reservoir operation.

A Cultural Resource Reconnaissance of the Conant Brook Dam area is currently being performed by New England Division's cultural resource staff. Testing of potential areas below the spillway crest elevation failed to locate any remains of prehistoric occupation. Present reservoir operation does not impact any significant prehistoric cultural resources and potential development of a pool at el. 700 msl and a boat ramp near the dam should not affect significant prehistoric resources.

Proposed development of an expanded parking area, picnic area and ballfield adjacent to the dam will occur in an area that was intensively disturbed by dam construction and borrow excavation in 1964-66. Therefore, any cultural resources within this area would have been destroyed at that time.

In summation, current operation does not appear to be adversely impacting any significant cultural resources. Currently proposed development plans are also expected to have no affect. Development of a trail system may require some level of further study of potential cultural resource impacts, as will any future development not now being considered or any substantial alterations of those plans now being proposed.

3. Ecological Resources

Since Conant Brook Dam is ungated, outflows are normally equal to inflows and increase during flood periods in proportion to the pool stage. Therefore, downstream fisheries productivity are not directly affected by flood control operations. Fish movement below Conant Brook Dam is restricted by the water supply dam which was in existence there prior to construction of the project. However, Conant Brook Dam also creates a barrier to the upstream-downstream movement of fish. In the warmer months of the summer during low flows, the shallow impoundment causes slightly higher discharge temperatures which could affect downstream native trout populations. How-

ever, the effect, if any, is minimal because the shallow downstream water supply impoundment has historically produced the same effect.

The flood protection afforded by this project and others in the Chicopee River really has encouraged development in flood plains downstream. The flood plain areas which remain undeveloped are likely to undergo changes in vegetation cover. Prior to the development of flood control works, such areas were subject to inundation at periodic intervals, a determining factor in the type of vegetation associations found in the floodplain zones. In the absence of periodic inundation, the traditional upland successional pattern characteristics of hardwood forests is likely to continue, the changes being most pronounced along the brushy and open areas found along the streambanks.

4. Environmental and Scenic Qualities

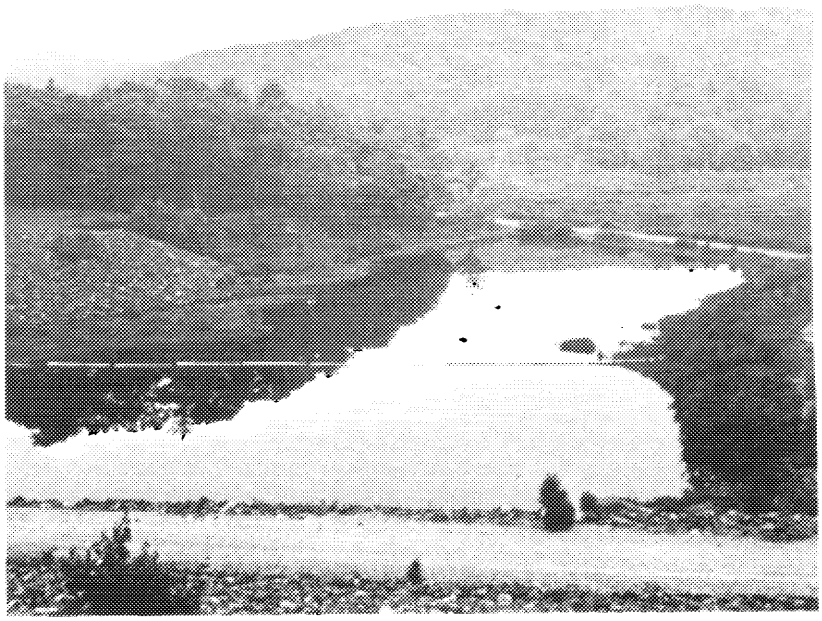
a. Topography

The project is located in the western part of the Worcester plateau, a region of moderate relief. The region lies between 500 and 1,200 feet msl in elevation and is characterized by broad, steep-sided hills and poorly drained valleys. The topography is controlled largely by the underlying, folded and much altered crystalline bedrock modified by glacial and post-glacial erosion and deposition.

The project area is generally rectangular in shape with an average width of 3 miles and an average length of 2.5 miles. The topography is hilly with elevations varying from about 700 feet at the dam site to a maximum of 1,260 feet msl in the headwaters. The tributary of Conant Brook is Vinica Brook which drains about 6.4 square miles. The relatively steep slopes of the hills and tributaries which drain into a narrow valley with a small amount of valley storage, are conducive to rapid runoff. The main stream bed above the dam site drops about 300 feet in 5 miles.

b. Vegetation

The area lies in a region that is typified by oak, yellow poplar (tuliptree), white pine, white birch and, in the highlands, gray birch. In the valleys, the dominant growth is gray birch, white birch, pitch pine, oak and cedar. Beech, white oak, red oak, maple and white pine trees are numerous in all parts of the area, while such trees as elm, aspen, ash, hickory and walnut are not as plentiful, growing only in the higher areas. Swamps contain larch, soft maple, alder, ferns, ground pine and club moss. Shrubs most commonly found are sumac, ground juniper, sweetfern, steeplechase, running cinquefoil, blueberries and brier berries. The common grasses are broom sedge, poverty grass, Kentucky and Canadian bluegrass, Rhode Island bentgrass, small spear grass, wood spear grass, false redtop and foxtail.



Pool area above dam to be enlarged. Road across present pool would be covered and boat ramp would take its place on right (south) lake margin.

Scenic natural setting of Conant Brook Reservoir area.

The forest cover on the steep slopes of the project area consists of second growth hardwoods as well as such conifers as spruce, hemlock and pine. Hardwoods typically found on these slopes include red and white oak, blue beech, birch and some sugar maple.

Birch, alder and red maple as well as conifers may be found on the lower slopes. Also, hemlock is found on rocky areas on lower slopes. In addition, infrequently inundated vegetation on lower slope areas is likely to include dogwood, sweet gum, black gum, sassafras and red cedar.

The project also includes a 10-acre cranberry bog interspersed with white pine. This bog is located in the northern portion of the project, near the Munn Road dike, and was at one time commercially operated by a local farmer.

c. Land Uses

The project area totals 469 acres, all of which are owned by the Government in fee although approximately 85.5 acres are leased out for agricultural purposes. There are 2 acres in easement for Blanchard Road but no flowage easements. A gas pipeline crosses the project, subject to an easement existing prior to Government ownership.

Maintenance of project facilities is the responsibility of the Westville Dam project manager since there are no resident personnel at Conant Brook Dam. Recreational facilities at present include only a small public parking area near the south end of the dam.

The project is, nevertheless, used on a year-round basis for a variety of outdoor recreational activities. The combination of varied terrain, a put-and-take sports fishery, diverse wildlife species and ease of access makes the project an obvious attraction in an era of increased outdoor recreational demand.

d. Visual Amenities

Protection and preservation of natural site amenities is a fundamental project purpose in the Master Plan. The land encompassed by the dam and reservoir area is typical of the southern New England countryside with rolling wooded hills, expanses of sky framed by forest growth and the absence of noise, confusion and congestion. In such an area where man senses the presence of nature with its living entities of forest and stream, development must be coordinated with the intangible as well as the tangible site assets to avoid becoming an intrusion. In this way, the area becomes a place where man for a time can come close to the unspoiled world around him and derive satisfaction from having his activities of sport and play blend with nature.

5. Recreation

Although the primary use of project land is flood control, a varied resource base provides opportunities for recreation, fish and

wildlife and forestry management practices. The principal activity at present is a game stocking program carried out by the Commonwealth of Massachusetts in cooperation with Corps of Engineers. These management efforts could be improved by selective cutting for browse regeneration, planting of food plots and other management measures. The planting of browse and cover vegetation on those areas despoiled by construction operations would contribute to project aesthetics and its utility for wildlife management, particularly the land south of the formal access area. The Massachusetts Division of Fisheries and Wildlife has expressed interest in managing project lands, but at present is restricted by limitations in funding.

Despite the absence of sustained resource management practices, the project receives significant recreational use and meets diverse leisure needs. Major forms of outdoor recreational activities include hunting, fishing, trail bike riding, hiking and snowmobiling. Hunting in the project area has increased during the past years as a result of sustained wildlife management practices in the nearby Norcross Wildlife Sanctuary.

Although the volume of use described above does not approach the optimum carrying capacity of the resource, some forms of resource deterioration and abuse are evident; e.g., erosion, vandalism and littering, principally near the dam and access road.

Solid waste receptacles are provided on a seasonal basis at the parking area near the dam. No other public service facilities are currently considered to be necessary or practical.

V. FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT

1. General

The project is managed primarily as a flood control facility, however, project lands are open to the public for a variety of uses, with the State stocking pheasant yearly. Since there is no resident project manager, there is a minimum of active site management in terms of facility development, landscaping and reclamation.

2. Demographic

Monson is a residential community noted for manufacturing metal products, machinery and plastic molding as well as chemical production and form printing. Manufacturing is by far the largest source of employment, with wholesale and retail trade being second. The only commercial mineral activity is granite quarrying.

Agricultural pursuits in the Chicopee River Basin are extremely limited with only 20 percent of the total land area being utilized for this activity. This is mainly because about 16 percent of the drainage

Area of proposed softball diamond beyond parking area and to the left (south) of the access road, looking west.

Looking east across the proposed softball diamond to the parking area and proposed picnic area.

area in the vicinity of Quabbin Reservoir (117 square miles) is owned and utilized by the Commonwealth of Massachusetts for water supply purposes and a large part of the basin is hilly with poor soil conditions.

3. Topography and Geology

The steep terrain in the reservoir area limits the potential for recreational development. Other areas within the reservoir consist of marsh and swamp land which provides good wildlife habitat and is best left in a natural undeveloped state. Level areas adjacent to the dam and spillway provide limited development potential for recreation facilities such as ballfields and picnic areas.

The local geology, as previously discussed, does not seriously influence or constrain development of the project area as it relates to either bedrock depth or to the location and design of subsurface sewage disposal systems.

4. Accessibility

Conant Brook Dam is accessible via Interstate 90 (Massachusetts Turnpike) in Palmer which connects to Massachusetts/Connecticut State Route 32. Direct access is provided from State Route 32 by Blanchard Road. All roads in the area are local secondary roads with the exception of Route 32. Signs posted at intersections provide directions to Conant Brook Dam.

5. Area of Influence

A primary area of influence of one hour's driving time was plotted along with zones for both two and three hours (Figure 2). (Driving time was based on local road types and accounts for the variable distance and irregular shape of the radius.) The one hour zone of influence extends into Connecticut while the two hour zone takes in parts of Vermont, New Hampshire and Rhode Island.

Principal cities in the region include Springfield (approximately 30 minutes from Conant Brook) and Worcester, Massachusetts, Manchester and Hartford, Connecticut (all approximately 1 hour from Conant Brook). Nearly 390,000 people live within a half-hour drive of the project and over 1.4 million people live within one hour of the Dam (1970 census data). Census data shows a steady increase in the area over the past 20 year period. The economy of this region is based largely on the highly diversified manufacturing industries that have been characteristic of the Connecticut River Valley since its settlement.

The town of Monson, in which Conant Brook Dam is located, had a 1970 population of 7,355, which is an increase of 643 from 1960.

6. Related Recreational and Historical Areas

There are 5 State parks, 4 State forests, one Corps of Engineers' dam and 12 private recreation areas within a half-hour drive of Conant

Brook Dam. Within a one hour drive, there are 22 State parks, 13 State forests, 9 Corps of Engineers dams and 37 private recreation areas.

Pertinent Recreation Data Taken from the 1978 Massachusetts SCORP indicate the following:

* Bicycling and nature walking are the most popular recreation activities statewide.

* In central and western Massachusetts, picnicking is preferred to any other outdoor recreation activity.

* Demand is expected to increase significantly through the year 2000 for nature walking, picnicking and hiking, both numerically and percentagewise.

* Nature walking and bicycling, the two most popular activities statewide, show the most significant deficit of facilities.

* The activity showing the greatest increase in facilities' need through the year 2000 is nature walking with picnicking a close second.

The Connecticut SCORP further indicates a need for additional walking and hiking trails, horseback trails, cross country skiing areas and snowmobile areas.

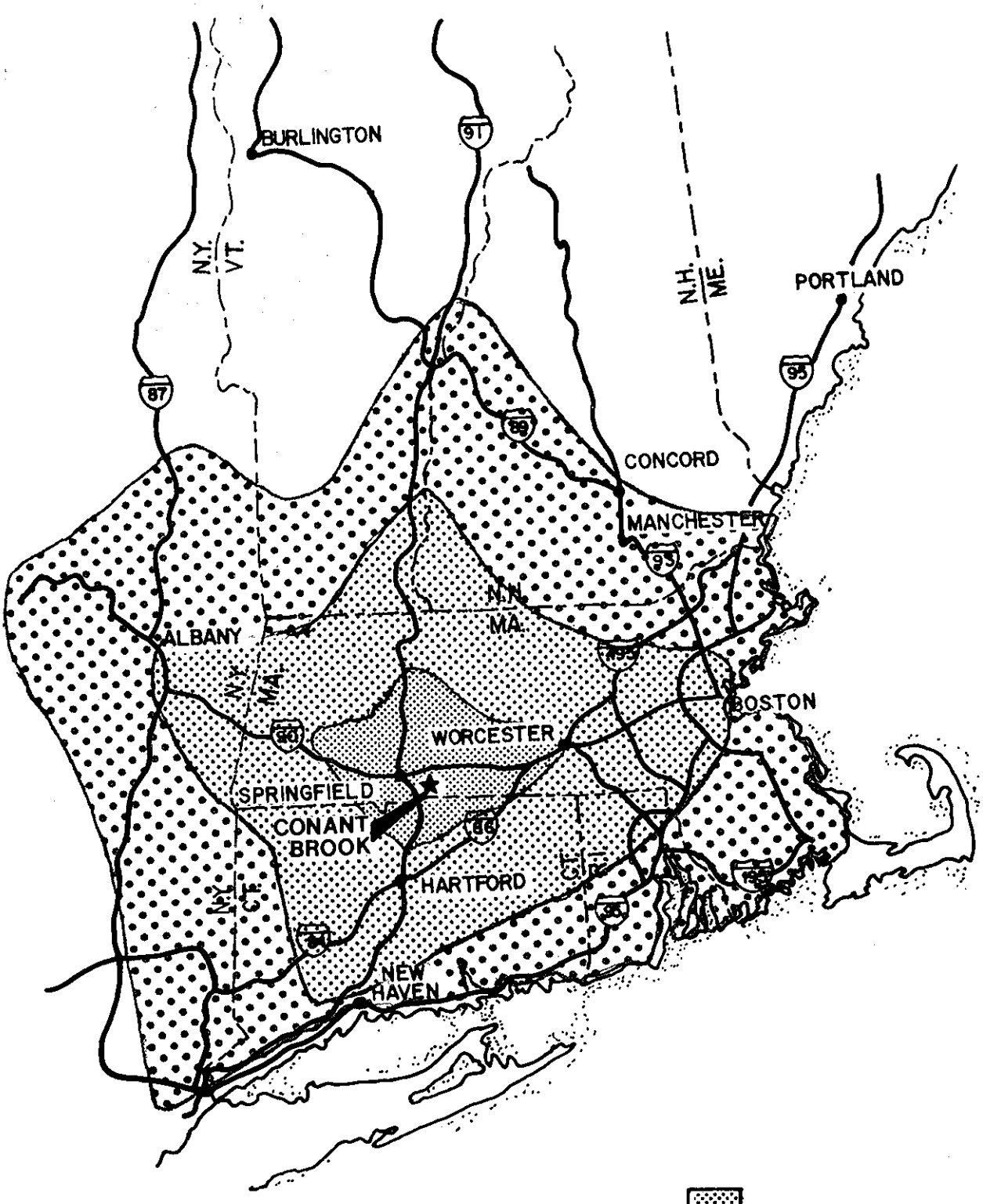
Historic attractions within a half hour drive of Conant Brook Dam include: 1) Old Sturbridge Village at Sturbridge, Massachusetts, a re-creation of a 19th century village; 2) Pynchom Memorial Building in Springfield, Massachusetts, a historical museum; and 3) Springfield Science Museum in Springfield, Massachusetts.

Within a one hour drive of Conant Brook Dam are: 1) Old Newgate Prison in West Suffield, Connecticut; 2) the Mark Twain Home in Hartford, Connecticut; and 3) the Harriet Beecher Stowe Home in Hartford, Connecticut.

7. Reservoir Plan of Operation

Although the project was designed to have no permanent pool, there is a shallow pool behind the dam approximately 2 feet deep which covers about 4 acres. At the spillway elevation of 757 feet msl, the reservoir would cover approximately 158 acres along Conant and Vinica Brooks. Several roads in the reservoir area can be inundated during flood control operations.

Since the dam is ungated and self-regulating, no permanent employees are stationed there. Management and maintenance are the responsibility of the nearby Westville Lake project manager.



DRIVING TIME TO CONANT BROOK DAM

FIGURE 2

In the 11 years since construction, there have been no storage operations utilizing over 10 percent of available capacity.

8. Relocations

Portions of East Hill, Pond, Waterworks and Wales Roads were abandoned at the time of project construction, while sections of Munn and Sutcliffe Roads were raised in place. Wales Road was relocated around the south and west sides of the project.

On Munn Road there were three poles supporting a single phase 2,400 volt electric line which was relocated. On Wales Road, from Moores Cross Road to Waterworks Road, there was a 3-phase 2,400 volt line that was relocated around the reservoir on Blanchard Road. Both lines are owned by the Massachusetts Electric Company.

All telephone lines within the reservoir area are owned by the New England Telephone and Telegraph Company and were relocated with the electric lines.

Two water supply wells owned by the town of Monson were relocated outside the reservoir area since they were also subject to inundation.

9. Borrow Areas

Materials for the construction of the impervious and random fill sections of the dam were taken from a borrow area located above the left abutment of the dam. Land above the right abutment was used as a spoil area and denuded as a result. Both areas are presently revegetated with herbaceous species. The spoil area is presently used by trail bikers and, as a result, remains partially denuded.

10. Water Quality

A water quality data collection program has been conducted at Conant Brook Dam by the Corps of Engineers since 1970. Data is collected at inflow, impoundment and discharge stations. Analyses are conducted to measure water and air temperature, pH, conductivity, turbidity and dissolved oxygen. Also, additional laboratory analyses have been conducted to measure a number of biological and chemical parameters.

The critical water quality period generally occurs during the late summer months when stream flows are lowest rather than in the spring when water temperature is low and flows are high. Comparison of discharge water quality with inflow water quality shows some minor influences from impoundment such as slight temperature increases but indicate no significant water quality problems.

The New England Division's water quality sampling program has included eight stations in Conant Brook and its tributaries, however, only two stations have been monitored continuously since 1970. They

are station CB-01 on Vinica Brook, the main tributary to Conant Brook, at its entrance to the dam site area, and Station CB-07 on Conant Brook at the discharge from Monson Reservoir, which is located immediately downstream from Conant Brook Dam.

The data from these stations show that Conant Brook generally has high quality water but does not fully meet its Class A rating primarily because of high coliform counts. Between 1970 and 1974, 21 samples were collected in the Conant Brook Dam area and analyzed for coliform bacteria. The counts ranged from 40 to 6,900 per 100 ml with a mean of 1,950 per 100 ml. All but one of the counts were over the 50 per 100 ml average required by Class A standards.

The waters of Conant Brook and its tributaries are rated Class A by the Massachusetts Division of Water Pollution Control. Class A waters are uniformly excellent in character and are designated for use as sources of public water supply. Water quality requirements for Class A waters include: dissolved oxygen (DO) levels not less than 5 mg/l at any time; total coliform bacteria not to exceed an average value of 50 per 100 ml during any monthly sampling period; no chemical constituents in concentrations that would be harmful or offensive to humans or harmful to animal of aquatic life; and no color, taste, odor or pH other than that arising from natural conditions.

The town of Monson maintains the Monson Reservoir as an emergency source of drinking water. Consequently, there is no desire in the town to allow for primary or secondary water contact recreation in the reservoir in order to maintain the highest water quality.

11. Anticipated Attendance

Visitation at Conant Brook Dam over the past 10 year period has averaged nearly 40,000 annually. Recreation demand nationally is increasing and forecasts for the Commonwealth of Massachusetts indicate that out of 21 recreation activities listed in the 1978 SCORP, 18 will show increases through the year 2000 (site camping, horseback riding and ice skating show slight projected decreases).

Visitation data from both the Corps and the State show that once provided, recreation facilities soon become heavily utilized.

Because the activities proposed in this Master Plan are among those showing the greatest facilities'need and are among the most popular activities in this region and because the town of Monson has little available public open space, heavy utilization of the recreation facilities proposed herein is expected.

12. Application of Public Law 89-72

Due to the limited potential for development of recreation facilities at Conant Brook Dam, it is not considered to be practical to cost

share the recommended improvements with the town of Monson. It is anticipated that a license would be granted the town for future construction of the proposed softball field and picnic area, while future provision of a small pool and revegetation of the farmer borrow and spoil areas would be the responsibility of the Corps of Engineers.

VI. COORDINATION WITH OTHER AGENCIES

1. Federal

No other Federal agency has an active management role on lands in the vicinity of Conant Brook Dam. However, the U.S. Fish and Wildlife Service has been contacted regarding future development plans as discussed in this Master Plan.

2. State

Representatives of the Massachusetts Department of Environmental Management were also contacted in connection with possible future State involvement in the development and management of the recreational resources of the project area but they expressed no interest in the Conant Brook Dam area at this time. The Massachusetts Division of Environmental Health provided information relating to public health policy. Water contact recreation would be prohibited within the project area as long as the Monson Reservoir immediately downstream from Conant Brook Dam is classified by the town for use as a regular water supply even though it is presently used only for emergency standby purposes. The Massachusetts Division of Fisheries and Wildlife has expressed interest in managing the project lands but presently is restricted by funding limitations.

3. Local

Extensive coordination has taken place between the Corps of Engineers and the town of Monson throughout preparation of this Master Plan. Their wishes are reflected in the development options set forth herein.

VII. PHYSICAL PLAN OF DEVELOPMENT

1. Zoning

All project lands at Conant Brook Dam are available for general recreational use except for small areas used for project operations.

The project lands are comprised of 469 acres, all of which are owned by the Corps of Engineers in fee. These lands are zoned for the following uses:

Project Operations - The dam, spillway, dike and access road are located on lands reserved for project operations and total approximately 34 acres.

Operations, Recreation-Low Density - The remainder of the project

area is zoned for low density recreation which totals approximately 435 acres.

Various roads within the reservoir are designated snowmobile trails (see Figure 3). The remainder of the area is available for fishing, hunting, sightseeing, nature study and other non-site specific activities.

2. Project Structures

Existing structures consist only of the dam and dike. Adequate visitor parking is presently provided at the south end of the dam where a good overview of the project area is afforded.

3. Recreation Site and Area Plans

Recreation development proposed at Conant Brook Dam is shown in overview on Figure 4, the Proposed Recreation Development Plan.

a. Lake - A 10-acre lake behind the dam with an average depth of 4 feet at elevation 700 feet msl is proposed for fish and wildlife enhancement purposes. The presence of a small lake in this natural setting will also add significantly to the aesthetic values of the area. Because the water flowing from Conant Brook Dam into Monson Reservoir is an auxiliary source of drinking water, swimming will not be allowed in the project area.

However, a boat ramp could be developed on the south side of the lake just off Wales Road. A turnaround space could also be provided opposite the ramp, with parking for cars and trailers available along Wales Road.

In order to create the lake, a concrete weir would have to be constructed, the cost of which would be borne by the Federal government since it would be a permanent project structure. Implementation of this work would depend on future coordination with the Massachusetts Department of Fisheries and Wildlife and the town of Monson.

b. Trail System - Within the reservoir area, a system of trails could be developed for hiking and cross-country skiing in addition to the present snowmobile trails. Those loops nearest the dam could be developed into a self-guided nature trail.

Approximately 5 miles of trails are shown on the proposed Recreation Development Plan. These routes are suggested for future field investigation and are not intended to represent final trail locations. Access to the trail system should be provided from the dam and each of the parking/turnaround areas on East Hill Road and Waterworks Road. Loop trails of various lengths should be provided to allow for the variable abilities and interests of hikers and skiers.

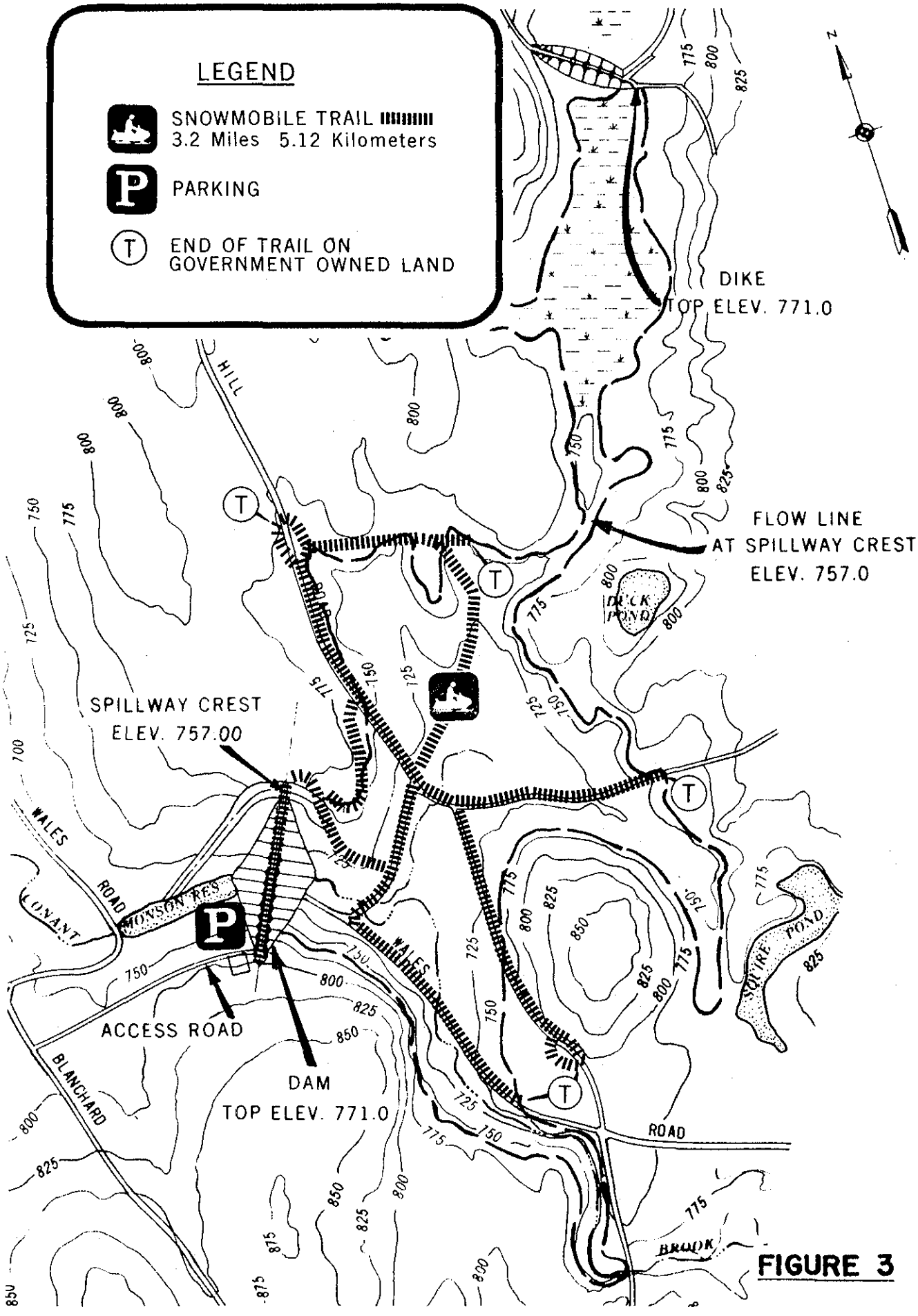

LEGEND
SNOWMOBILE TRAIL
3.2 Miles 5.12 Kilometers
PARKING
END OF TRAIL ON GOVERNMENT OWNED LAND
DIKE
TOP ELEV. 771.0
FLOW LINE
AT SPILLWAY CREST
ELEV. 757.0
SPILLWAY CREST
ELEV. 757.00
ACCESS ROAD
DAM
TOP ELEV. 771.0
HILL
WALES
ROAD
CONANT
MONSON RES.
BLANCHARD
ROAD
DUCK POND
SQUIRE POND
BROOK

FIGURE 3

c. Softball field - A softball field proposed by the town of Monson could be developed south of the access road to the dam in the former borrow area. While now relatively flat, some regrading would need to be done to properly slope and level the ground surface of the playing field. A permanent backstop would be needed, but no other associated structures are proposed.

Drainage from the steep slopes to the south and west would need to be intercepted and drained around the playing field.

d. Picnic Area - Adjacent to the softball field a small picnic area of about six sites could be provided to complement the ballfield. This area could support a maximum of 20 sites, but additional development would depend on future demand and maintenance capabilities of the town of Monson, who would operate the facilities under a license from the Corps.

e. Parking - To support the picnic area, softball field and access to a portion of the trail system, an enlarged parking area should be provided to initially accommodate about 20 cars.

f. Revegetation - Revegetation of the former borrow and spoil areas could be done with a combination of seeding herbaceous species and transplanting woody shrubs and trees. Specific planting techniques and plant mixes should be determined after consultation with the Soil Conservation Service and the Massachusetts Division of Fisheries and Wildlife.

As the picnic area is developed it should be planted with quick growth tree species to provide shade and provide a buffer between the picnic area and parking area.

4. Schedule of Development

Development of the recreation facilities suggested herein would be undertaken, with Corps review and approval, by the town of Monson as local interest and funding are available. The sequence of development would be at the town's discretion.

5. Cost Estimates

The estimated construction cost of the proposed recreation facilities and aesthetic and environmental improvements within the project area is $27,000. A breakdown of the responsibilities and costs is contained in Section XV, "Cost Estimates".

VIII. FACILITY LOAD AND DESIGN CRITERIA

1. Siting

All suggested recreation developments have been planned with consideration given to environmental and aesthetic qualities, type of use, amount of visitation and the ability of the area to assimilate activities and to avoid overuse.

2. Waste Collection and Disposal

Collection and disposal of trash at developed recreation areas at Conant Brook Dam would be the responsibility of the town of Monson.

3. Roads

The access road to Conant Brook Dam from Blanchard Road is paved and well maintained. Portions of Wales Road and East Hill Road in the reservoir area are also paved but are deteriorating due to lack of maintenance. The remaining roads in the project area are gravel and are suitable for the relatively light traffic they receive.

4. Parking Areas

If proposed recreation facilities are developed, the existing paved parking area at the dam would have to be expanded. Initial development would accommodate 20 cars in opposite perpendicular fashion. This would increase the existing parking surface from about 4200 square feet to about 6500 square feet.

5. Boat Launching Ramps

A small gravel boat launch is proposed, to be located on the south shore of the recommended pool just off Wales Road. For ease of turning, a short pull-in space could be located opposite the ramp, with adequate parking for cars and trailers along the side of Wales Road.

6. Picnic Areas

The proposed picnic site would be located at the old borrow area near the parking and overlook at the south end of the dam. This site is well-suited to picnicking but lacks tree cover. Development as a picnic site would therefore necessitate planting of quick growth tree species.

Further development of the picnic area would depend on future demand and the wishes of the town of Monson. The proposed site contains approximately 50,000 square feet, which is suitable for a maximum of about 20 picnic tables.

7. Overlook Structures

No overlook structures are proposed. However, a good overview of the project area can be seen from the top of the dam adjacent to the parking area.

8. Trails

Within the reservoir area there are 3.2 miles of roads and trails that have been designated as snowmobile routes. These are principally routes traditionally used by snowmobiles passing through the area. The reservoir is not generally used as a destination riding area. For this

reason it is felt that there will be little conflict between cross-country skiiers and snowmobiles within the project area if a cross-country ski/hiking trail system is developed.

The final route of the hiking/ski trail would be determined in the field by a New England Division landscape architect in coordination with any local groups to take full advantage of the site's natural features and scenery.

9. Signs

Project information signs at Conant Brook Dam are stained wood with carved white lettering. Signs serving a protective or safety purpose are metal.

10. Ballfield

The town of Monson has identified the need for a softball field and expressed an interest in the Corps property at Conant Brook Dam as a possible site. The former borrow area south of the dam is the only site within the reservoir area that is generally suitable for a softball field. Some regrading will have to be done to locate the playing field here in order to level and slope the surface properly. A backstop would be required but no other associated structures would be necessary.

IX. SPECIAL PROBLEMS

1. Natural Resource Preservation

The biggest problem associated with the development of recreation facilities at Conant Brook Dam is the lack of continuous onsite management, which, therefore, imposes a constraint on the size of any potential development. The proposed recreation facilities have, however, been planned to preserve the natural characteristics of the area as much as possible.

2. Fish and Wildlife Resources

Bag limits and seasons for the various species of fish and game found in the project area are set by the Massachusetts Division of Fisheries and Wildlife, except for migratory birds which are determined by the U.S. Fish and Wildlife Service in cooperation with the State. The principal game species sought at Conant Brook Dam is stocked pheasant, although whitetail deer, woodcock, ruffled grouse, gray squirrels, rabbits and several species of duck are also found in the area.

X. PROJECT RESOURCE MANAGEMENT

Conant Brook Dam is managed and maintained by the project personnel at Westville Lake. Because Conant Brook Dam is self-regulating, no permanent onsite personnel are required.

The reservoir is periodically patrolled by the Thames River Basin Ranger and the Monson Town Police.

A Project Resource Management Plan will be prepared for Conant Brook Dam and become an appendix to this Master Plan.

XI. FOREST MANAGEMENT

No active timber management exists at present at the Conant Brook Dam, although some commercially important species are found in the reservoir area. A forest management plan will be developed for this project and become an appendix to this Master Plan.

XII. FIRE PROTECTION

The Corps of Engineers does not maintain specially trained firefighting crews, therefore project personnel are used only to suppress small fires and assist other firefighting organizations in fire suppression activities as needed. Trained firefighters are available from the town of Monson, while the Westville Lake Project Manager is available for immediate action on fires within the project area. A Fire Protection Plan has been prepared as an appendix to this Master Plan.

XIII. FISH AND WILDLIFE MANAGEMENT

The project area is presently stocked with pheasant on an annual basis by the Massachusetts Division of Fisheries and Wildlife. The program is basically "put and take" with the heaviest pressure taking place in October.

Beyond stocking pheasants, no active wildlife/habitat management program presently exists at Conant Brook Dam. Any future plantings for wildlife food and cover will be coordinated with the Commonwealth of Massachusetts. A fish and wildlife management plan will be prepared as an appendix to this Master Plan.

XIV. PROJECT SAFETY

The project manager at Westville Dam is responsible for developing plans and programs designed to implement and enforce safety regulations and requirements. A hazard-free environment for both Corps personnel and the visiting public is essential.

Project personnel are required to identify hazards and unsafe conditions that occur in all areas of their operation. Once identified, they take steps to prevent, reduce or control such hazards.

Project personnel are trained in safety regulations and in the use of safety equipment. Markers, signs or guardrails are provided at appropriate locations throughout the area. Negative signs and warnings have been held to a minimum so that the public may enjoy the greatest freedom without unnecessary restraint.

Access roads are closed to the public during flood control operations. A project safety plan will be prepared as an appendix to this Master Plan.

Hunters are controlled by the Massachusetts fish and game laws, which generally prohibit activities that would damage vegetation or government property or would threaten the safety of hunters or other project users.

The rules and regulations of the project are reasonable and, if obeyed, help to protect the natural environment of the area as well as the people who use it. A more detailed discussion of project safety is contained in the appendix.

XV. COST ESTIMATES

The table below provides a breakdown of the estimated costs for the development of the proposed recreation facilities and environmental and aesthetic improvements at Conant Brook Dam.

CONANT BROOK DAM

ITEM	UNIT	UNIT COST	QTY.	COST
Weir (to hold pool)	L.S.	$7,000	1	$ 7,000
Boat Ramp	L.S.	800	1	800
Trail System	Miles	200	5	1,000
Picnic Area	Sites	200	6	1,200
Parking Area	Spaces	100	20	2,000
Ballfield	L.S.	2,000	1	2,000
Revegetate Spoil and Borrow Area	Acre	700	10	7,000
SUB - TOTAL				$21,000
E&D and S&A				6,000
TOTAL COST				$27,000

XVI. CONCLUSIONS

The demand for outdoor recreation is projected to increase for 18 of the 21 activities listed in the 1978 Massachusetts SCORP through the year 2000. Similarly, an increasing recreation demand and need for facilities has been identified in the 1978 Connecticut SCORP.

The public openspace of the Conant Brook project area is located in an attractive natural setting and, as such, has a good inherent potential for various types of nonconsumptive recreation development.

Specifically, picnicking, nature walking, cross-country skiing and fishing are activities showing significant demand and facility needs for this region in the Massachusetts and Connecticut SCORPS. These are all activities that can be easily developed at Conant Brook Dam because of the site's natural suitability. In addition, the townspeople of Monson have expressed a strong interest in a softball field which, with minor grading, could be easily developed in the area of the former borrow area.

XVII. RECOMMENDATIONS

Because of this project's inherent suitability, general recreation trends, regional recreation needs and requests by the town of Monson, the recommendation of this Master Plan is to develop the following recreational facilities at Conant Brook Dam:

1. Create a pool approximately 4 feet deep at elevation 700 ft. msl which will create a 10-acre lake for fish and wildlife habitat improvement and increased aesthetic values. Provide, in addition, a boat ramp for improved fishing access.

2. Develop a trail system in the reservoir area for nature walking and cross-country skiing. Portions could also be developed into an interpretive trail at some future time.

3. Develop a picnic area near the parking area at the top of the dam for about 6 sites initially, which could be expanded in the future to a maximum of 20 sites.

4. Provide a softball field in the former borrow area to meet local town needs.

5. Enlarge the parking area to accommodate about 20 cars to service the proposed ballfield and picnic areas.

6. Revegetate portions of the former borrow and spoil areas. The picnic area should also be planted with quick growth tree species.

In summary, recommendations 3. and 4. could be accomplished by the town of Monson upon obtaining a license from the Corps of Engineers. This work would be funded by the town. The other recommendations could be carried out by the Government depending on the scheduling and availability of Federal funds.

CONANT BROOK DAM

MONSON MASS.

PROPOSED RECREATION DEVELOPMENT PLAN

LEGEND

- PROJECT OPERATIONS
- FOREST ED AREA
- PERMANENT PROJECT WATER AREAS
- OPEN AREA
- FLOW LINE AT SPILLWAY CREST EL. 757.0
- PROPERTY LINE (LAND OWNED IN FEE)
- PROPOSED CROSS COUNTRY SKI TRAIL
- PROPOSED HIKING – INTERPRETIVE TRAIL

SCALE FEET 0 200 400 600 NORTH

FIGURE 4